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Spizella breweri Cassin. Ten specimens, both sexes, Santana, San Jabier and Rosarito, February 26 to April 1. Mr. Brown did not take *Spizella pallida*, tho it probably occurs in this region in winter.

Melospiza cinerea cooperi Ridg. One specimen, Rosario, November 18. This bird, a migrant, of course, is not typical, having probably come from a region where *cooperi* intergrades with some other form.

Zonotrichia 3 leucophrys leucophrys (Forster). Three specimens, adult male and female, and young male, Rosarito, and San Jabier, March 2, 27 and 29.

Zonotrichia leucophrys gambelii (Nuttall). Seven specimens, adults and young of both sexes, Rosarito and San Jabier, February 25 to April 2.

Oreospiza chlorura (Aud.). One male, San Jabier, March 30.

Pipilo crissalis senicula (Anthony). Seven adults, both sexes, Santana and San Jabier, March. Some skins in this series have the throat distinctly paler posteriorly, while others have it uniform; all are whitish in the middle of the belly, and intergradation with *P. c. albigula* is plainly indicated.

Boston, Mass.

SOME COLORADO NOTES ON THE ROCKY MOUNTAIN SCREECH OWL

By ROBERT B. ROCKWELL

DURING the long dreary winter months when the countryside is shrouded in snow and ice and when most of our feathered friends are taking their annual vacation in the sunny southland, there is one little fellow who is constantly with us and who, tho very inconspicuous to the casual observer, is sure to be found by the lonesome bird student who is disconsolate enough to brave snow and cold for a short visit with the birds along the well wooded streams in the vicinity of Denver.

The Rocky Mountain Screech Owl (*Megascops asio maxwellæ*)—for this is the feathered gentleman to whom I refer—is a resident thruout the year all along the eastern base of the foothills in the north central part of Colorado, but his hunting and breeding grounds are closely restricted to the well wooded creek bottoms, the only locations in this sparsely timbered region which afford him proper food, nesting sites and means of concealment.

As to whether this bird performs a slight north and south movement at migration periods, there seems to be a difference of opinion. Some observers declare that *Megascops* leaves its summer home around Denver, and moves south as far at least as Colorado Springs (75 miles), and its breeding grounds are occupied as a winter home by migrants from farther north. Others claim that it spends the entire year in the same haunts, laying its eggs in one of the many cavities occupied during the winter. Whichever view of the matter is correct, it is a fact that thruout the year the "owl stumps" so dear to the memory of every bird student, are occupied by these birds, and it is seldom indeed that a good sized grove of aged timber, with a few dead stumps scattered thru it, will not contain a pair of Screech Owls.

A very dull and lifeless bird you would undoubtedly call it as—your arm in-

³ We are of course aware of the name *Hortulanus* Vieillot (see ALLEN, Bull. Am. Mus. of N. H. Vol. XXIII, p. 360, 1907) that by first species rule replaces *Pipilo* and by elimination *Zonotrichia*, but until it is formally allotted to one or the other, we prefer using the old names.

served in an old flicker's nesting cavity—you gently stroke the brooding bird with your hand, without a sign of fear or anger on the part of the bird; but your preconceived ideas of its nature will receive a rude shock when you carefully slip your hand under it to remove it from the eggs, and as the long needle-like claws sink deep into your hand and you pull the bird forth from the hole with its red mouth open, its bill clicking defiance and its great yellow eyes flashing anger, you will

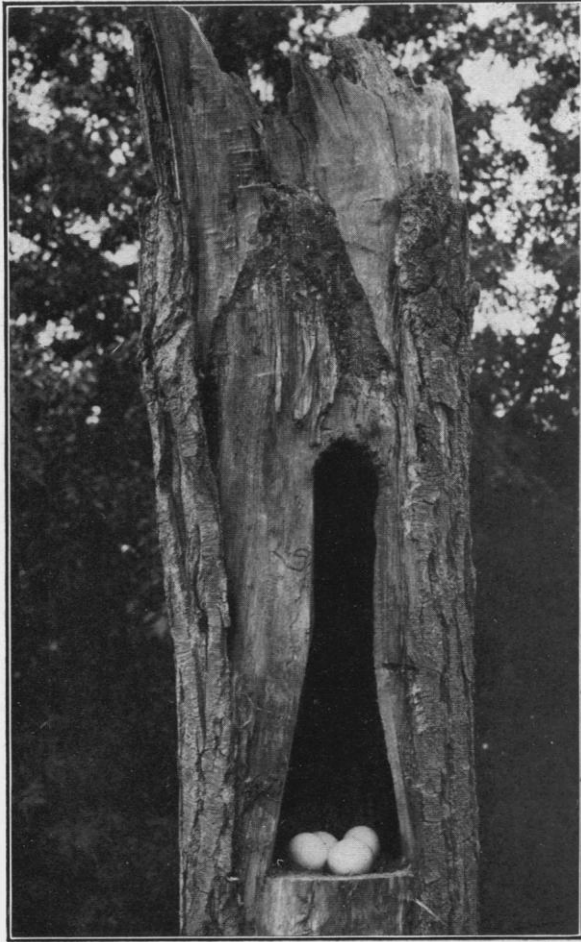


A TYPICAL NESTING SITE OF THE ROCKY MOUNTAIN SCREECH OWL

humbly admit that here at last you have found a Westerner with the true old Yankee fighting blood; and as you endeavor to remove those vice-like claws from some badly punctured fingers you will learn that bull-dog tenacity is also among the little fellow's characteristics.

With the first faint signs of spring and often while the wet spring snow is still

on the ground, this owl begins preparation for its nest building, which, by the way, is simple in the extreme. The month of April is the usual time for fresh eggs; and to be more precise than this as to date is hardly possible, as I have found fresh eggs as common during the first week of April as the last, and I am led to believe that the nesting date is governed largely by climatic conditions. Moreover, the nesting season is not confined to the month of April by any means, and nests with eggs have been found as late as the 30th of May. This is, however, an extreme date and is undoubtedly the result of an accident of some kind.



HOME OF ROCKY MOUNTAIN SCREECH OWL; WALL CUT AWAY TO SHOW NEST CAVITY

As has been stated before the nesting site is invariably along the well wooded water-courses and in more or less dense groves of cottonwoods and occasionally willow or box-elder. A peculiar characteristic of this bird is its predilection for sluggish or stagnant water, and one of the prerequisites of a model nesting site is a small slough or pool within a short distance of the nest hole. I am at a loss to know why this is so, unless it is that frogs and crawfish form no inconsiderable portion of the bird's food, and close proximity to a source of food supply may be a solution of the problem.

The very great majority of nests are found in cottonwood trees. This is probably due to the fact that this tree greatly predominates along all the foothill streams, and it is the variety most commonly used by the Red-shafted Flicker, the deserted excavations of which the Screech Owl nearly always occupies. However, natural cavities are occasionally resorted to; but owing to the nature of the trees these are found mostly

in box-elder or black willows, the cottonwood rarely rotting out in this manner. Captain Bendire in his incomparable work on North American Birds, states that the birds occasionally lay in the deserted nests of the Magpie.

The size of the cavities and entrances to the same naturally vary greatly. The Screech Owls do not excavate at all, but simply preempt the cavities as they are. It is extremely rare, however, that a nest is found in a cavity which is exposed to the elements, great care evidently being used to select a cavity which is more or less

sheltered. The eggs are usually laid on a bed of refuse, such as wood dust and the accumulations of a like nature (which are sure to be found in a tree cavity) over which a thin layer of feathers of small birds has accumulated thru the feeding of the owls, but I do not think that any attempt is made by the birds at nest building. The nests are always littered with the remains of small creatures—the food of the brooding female—including frogs, craw-fish, small birds and rodents, and occasionally a rabbit. The blood-stained eggs bear mute witness of the bloody nature of the birds' feasts.

The height of the cavities above the ground varies from five to forty feet, but the majority are between ten and twenty feet. The average height of twenty-five nests examined by the writer is $13\frac{1}{2}$ feet. Extremely high holes are rarely if ever used by the birds.

The great majority of full clutches contain four eggs, tho occasionally three or five are deposited. In the twenty-five sets it has been my good fortune to examine in the nests, the following sets were found: One of 2, five of 3, fifteen of 4, two of



YOUNG OF ROCKY MOUNTAIN SCREECH OWL NOT YET ABLE TO FLY

5, one of 6 and one of 7. The set of 2 was a second clutch, the first set of 4 having been taken 23 days previously to the date upon which the set of 2 was found in which incubation was about a fourth advanced. The comparatively large number of sets of three conveys a wrong impression, and is probably due to a little over-anxiety to collect the eggs, not giving the parent sufficient time to complete the clutch. I believe one in fifteen sets would be nearer the proper ratio of sets of 3 and 4. The set of 6 was laid by a particularly prolific female which had laid sets of five on the two preceding years; while the set of seven I cannot account for unless it was laid by two females, which is very improbable. This set was found May 30th, two birds were flushed from the cavity, and all seven eggs were addled. These two last mentioned sets and one set of six collected by Prof. A. H. Felger, are, so far as I can learn, the largest sets of this sub-species on record.

Quoting from Bendire, "The eggs of the Rocky Mountain Screech Owl are pure white in color and moderately glossy, the shell is smooth and finely granulated. In shape they vary from oval to a broad elliptical oval, some being de-

cidedly more elongated than any other eggs of the genus *Megascops* I have seen." Twenty eggs in the writer's collection average 1.17 by 1.43 inches; the smallest 1.12 by 1.35 and the two largest 1.15 by 1.53 and 1.21 by 1.50 inches. A set of four mentioned by Davie in his "Nests and Eggs of North American Birds" averages 1.21 by 1.49 and contains one egg which measures 1.26 by 1.54, the largest egg I have known of.

The eggs are laid every other or every third day and incubation begins as soon as the first egg is deposited. The young are consequently hatched on successive days and it is rare indeed that a brood of owlets is found which does not contain a weakling bird, smaller, more scrawny, in poorer flesh, and with less animation than his brothers and sisters.

The newly hatched nestlings are covered with a coat of beautiful fine white down, and with their weak, subdued little "cheep" and queer shaped heads are quite attractive little creatures. As they grow larger and stronger this baby beauty rapidly leaves them, but they still retain the soft and not unmusical quality of voice until they begin to feather out. The young are among the most helpless of

nestlings and their development in the nest is exceedingly slow. One nest that contained three young on April 28th, still contained two birds on May 26th that were fully fledged but could not fly well.

As soon as the young leave the nest cavity they take to the cottonwood trees, doing most of their flying at night and remaining perfectly quiet during the day, and their resemblance to the branches among which they sit (or to an old Oriole's nest) is remarkable.

The brooding females are very close sitters and it is very seldom that one will leave the eggs without being removed by hand. However, if a bird is disturbed fre-



ADULT MALE ROCKY MOUNTAIN SCREECH OWL

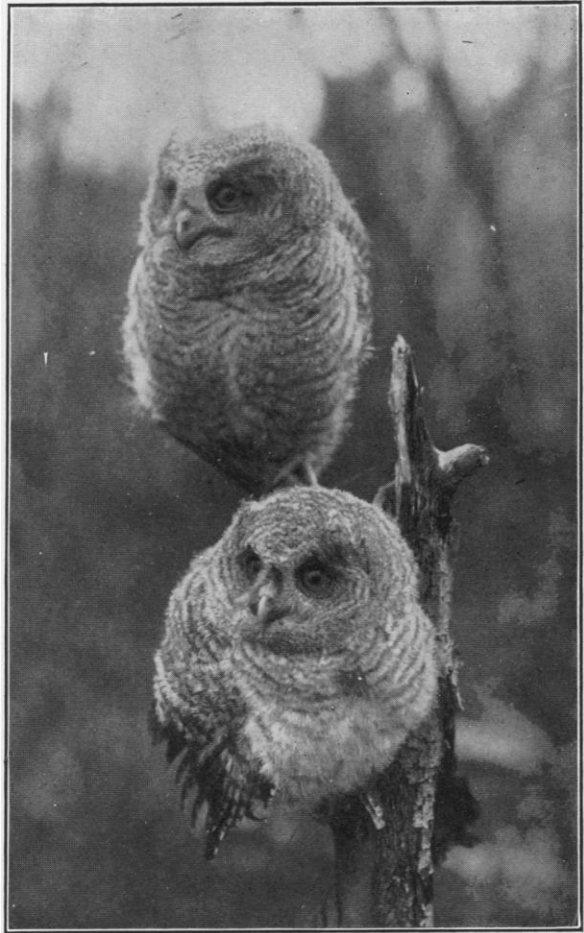
quently, she will soon learn to leave the nest as soon as the tree is struck, and will usually disappear from sight in the dense underbrush. When the bird is removed by hand and liberated she will usually fly to a nearby limb and voice her displeasure by sharp snapping of the bill and low moans; and with body thrown forward, ear tufts raised and eyes blazing her attitude is very menacing. On one or two instances where incubation was advanced I have known the female to return directly to the nest when liberated from the hand.

The female performs all the duties of incubation, her food being brought to the nest by the male, who, judging from the remains in and around the nest, is at all times a bountiful provider. This gentleman during the process of incubation can usually be found in another cavity not far distant from the nest, which is usually well filled with provisions. He is very careful, however, that no roving ornithologist shall lay hands on him, and usually the first rap on the tree will bring his little round head to the cavity entrance, and after surveying the intruder for a moment with a surprised expression, clumsily launches himself on the air and with short awkward wing-beats quickly disappears from sight.

When the young have left the nest, the parents join the brood among the trees and during the late summer and early fall are seldom seen owing to their quiet and seclusive habits; but as the cold, frosty nights approach the birds prepare the numerous cavities with warm linings of feathers of the smaller birds, and it is in these cosy winter homes that *Megascops* is found thruout severe weather.

The birds are of a rather solitary nature and rarely more than one pair is found in a grove, thruout which will be seen extensive evidences of their occupancy. I have never found two nests within a half mile of each other and ordinarily they will be separated by twice that distance.

The range of this subspecies as near as can be ascertained has its southern limit in the vicinity of Colorado Springs, where Mr. C. E. Aiken, the discoverer of *Megascops asio aikenii*, considers them as regular winter residents, being replaced from there south by *M. a. aikenii*. Both Dennis Gale and W. W. Cooke state that *M. a. maxwelli* rarely ascends higher than 6000 feet, which would preclude the possibility of its extending more than a few miles up into the foothills, and the most easterly record is recorded by Cooke as "30 miles out on the plains", probably referring to the Loveland, Colorado, record of W. G. Smith. The northern limit, according to Bendire, is Fort Custer in southeastern Montana, which tho a very early record, I believe still stands. From this it will be seen that *maxwelli* is strictly a foothills form, inhabiting a long, narrow strip of country running in a general north and south direction and closely adhering to the base of the eastern foothills of the Rocky Mountains.



YOUNG NEARLY FULL-FLEDGED ROCKY MOUNTAIN
SCREECH OWLS

Denver, Colorado.